
NAVY PUBLIC WORKS CENTER
NORFOLK, VIRGINIA
UTILITIES DEPARTMENT

STANDARD OPERATING PROCEDURE / JOB HAZARD ANALYSIS

TITLE

INSTALL POLE MOUNTED CURRENT TRANSFORMERS AND METERING EQUIPMENT

PROCEDURE NUMBER

WC 624 HVE 040

DISTR:
Code 601C.3
Code 610.E1
Code 620
Code 622
Code 622.4

SIGNED:_____
(DATE)

APPROVED:_____
(DATE)

SAFETY PROFESSIONAL:_____
(DATE)

MANAGEMENT OFFICIAL:_____
(DATE)

DATE:_____ REVISION DATE:_____

INSTALL POLE MOUNTED CURRENT TRANSFORMERS AND METERING EQUIPMENT

Purpose:

Procedure to install current transformers, watthour meter, and associated equipment on a distribution pole.

Potential Energy Sources:

1. Energized 34.5/11.5/4.16 kv conductors within close proximity.
2. Deenergized 34.5/11.5/4.16 conductors which are not included in the work and have not been grounded.
3. Energized 600 volt, or less, conductors within close proximity.

Tools and PPE:

Tools: Bucket truck, rubber hoses, rubber blankets, voltage tester, assorted hand tools. PPE: Nomex coveralls, Nomex hood, insulating rubber gloves, insulating rubber sleeves, hard hat, safety shoes, work gloves, safety glasses, orange vest, safety harness, and back brace if required by back injury prevention and control program. The class of rubber gloves and sleeves will depend on the exposure voltage as per the following: Class 0 - up to 1,000 volts, Class 1 - up to 7,500 volts, Class 2 - up to 17,000 volts, Class 3 - up to 26,500 volts, Class 4 - up to 36,000 volts.

References:

1. PWC Occupational Safety and Health Program Manual, PWCNORVAINST 5100.33E
2. SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger Truck
3. Occupational Safety and Health Standards for General Industry (29 CFR PART 1910): Subpart I, Personnel Protective Equipment; Subpart R, Electrical Power Generation / Transmission / Distribution; Subpart S, Electrical
4. NFPA 70 E approach distances to exposed, energized, electrical conductors and circuit parts.
5. ANSI C2-1987 National Electrical Safety Code
6. Electrical Transmission and Distribution Safety Manual, P-1060
7. The Lineman's and Cableman's Handbook, 5th ED
8. SOP WC 622 HVE 013, Deenergization, Lockout, Tagout
9. SOP WC 622 HVE 007, Switchout and Switchback Energized

Procedures:

1. WC 622 personnel will deenergize the transformer(s). WC 622 personnel will follow SOPs
   WC 622 HVE 007, Switchout and Switchback Energized Circuit
   WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)

2. Set up bucket truck. Refer to SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger truck for details.

3. When operating a bucket truck the following safety rules will be followed.
a) Only an authorized person, one with a current government license to operate an aerial lift, will operate the bucket.
b) Do not use the bucket truck if winds exceed the truck manufacture's specified limit.
c) Do not perform energized work in wet weather.
d) Personnel in bucket will wear a safety harness with a lanyard attached to the boom or bucket.
e) Do not exceed the bucket's weight limitations.
f) Stand firmly on the floor of the bucket with both feet. Do not sit on the bucket's edge or use planks, ladders, or other such devices.

4. Insulate all energized overhead circuits which are within 3 feet of work area. Insulate any deenergized overhead circuits that have not been properly grounded per Lockout and Tagout procedures. Personnel in the bucket shall wear Nomex coveralls, Nomex hood, safety glasses, safety shoes, insulating rubber gloves and sleeves, and hard hat.

5. Using a voltage tester, test the transformer(s) secondary bushings to verify the transformer(s) are deenergized. Wear PPE as per Step 3.

6. The following rules will apply to the job:
a) Personnel in the bucket will wear Nomex coveralls, safety glasses, safety shoes, insulating rubber gloves and sleeves, hard hat and a safety harness.
b) Ground personnel will wear hard hats, safety shoes, work gloves, and safety glasses.
c) Ground personnel will wear orange vests if working adjacent to a road or in a parking lot.
d) Ground personnel not involved with the work will watch the personnel working aloft.
e) Ground personnel will stay clear of area underneath the bucket unless the work dictates.
f) If ground personnel are present, then at least one of them will have been trained to operate the bucket in an emergency situation where the bucket personnel are no longer able to operate the bucket controls.

7. Install meter base on plywood board and secure to pole.

8. Install appropriate sized conduit and weatherhead.

9. Pull in 7 conductor, color coded, #16 gauge wire.

10. Remove secondary phase connection(s) to transformer(s) bushing(s) and install current transformer(s). The current transformer polarity dot should be towards the voltage source. Reconnect the phase wire(s) to the transformer(s) after current transformer installation.

11. Make wire connections, voltage and current, per the appropriate wiring diagram.

12. Install meter.
a) Place meter cover.
b) Place meter seal.

13 Remove insulation placed on energized conductors per Step 3. Remove insulation placed on conductors not properly grounded per lockout and tagout procedure. Personnel in the bucket shall wear Nomex coveralls, Nomex hood, safety glasses, safety shoes, insulating rubber gloves and sleeves, and hard hat. Remove insulation in reverse order that it was placed.

14. Secure bucket truck per SOP WC 624 HVE 001, Set Up and Secure Bucket/Auger.

15. WC 622 personnel will energize the transformer(s) as per the following SOPs:
WC 622 HVE 007, Switchout and Switchback Energized Circuit
WC 622 HVE 013, Deenergization, Lockout, Tagout

16. Check the meter operation.
Three Phase Meters
a) Check for disk rotation.
b) Check for voltage lights.
c) Check for proper disk rotation as per indicating arrow on the meter.
Single Phase meters
a) Check that the meter is operating.

END